

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/510,947
Source: PCT
Date Processed by STIC: 11-8-04

ENTERED



PCT

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/510,947

DATE: 11/08/2004
TIME: 12:29:50

Input Set : A:\UPN-O2811USA.txt
Output Set: N:\CRF4\11082004\J510947.raw

3 <110> APPLICANT: The Trustees of the University of Pennsylvania
 4 Wilson, James M.
 5 Medina, Maria Fe C.
 6 Kobinger, Gary
 8 <120> TITLE OF INVENTION: Chimeric Ebola Virus Envelopes and Uses Therefor
 10 <130> FILE REFERENCE: UPN-O2811PCT
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/510,947
 C--> 12 <141> CURRENT FILING DATE: 2004-10-28
 12 <150> PRIOR APPLICATION NUMBER: US 60/376,480
 13 <151> PRIOR FILING DATE: 2002-04-30
 15 <150> PRIOR APPLICATION NUMBER: US 60/385,704
 16 <151> PRIOR FILING DATE: 2002-06-04
 18 <150> PRIOR APPLICATION NUMBER: US 60/427,752
 19 <151> PRIOR FILING DATE: 2002-11-20
 21 <160> NUMBER OF SEQ ID NOS: 67
 23 <170> SOFTWARE: PatentIn version 3.2
 25 <210> SEQ ID NO: 1
 26 <211> LENGTH: 676
 27 <212> TYPE: PRT
 28 <213> ORGANISM: Ebola virus
 30 <400> SEQUENCE: 1
 32 Met Gly Val Thr Gly Ile Leu Gln Leu Pro Arg Asp Arg Phe Lys Arg
 33 1 5 10 15
 36 Thr Ser Phe Phe Leu Trp Val Ile Ile Leu Phe Gln Arg Thr Phe Ser
 37 20 25 30
 40 Ile Pro Leu Gly Val Ile His Asn Ser Thr Leu Gln Val Ser Asp Val
 41 35 40 45
 44 Asp Lys Leu Val Cys Arg Asp Lys Leu Ser Ser Thr Asn Gln Leu Arg
 45 50 55 60
 48 Ser Val Gly Leu Asn Leu Glu Gly Asn Gly Val Ala Thr Asp Val Pro
 49 65 70 75 80
 52 Ser Ala Thr Lys Arg Trp Gly Phe Arg Ser Gly Val Pro Pro Lys Val
 53 85 90 95
 56 Val Asn Tyr Glu Ala Gly Glu Trp Ala Glu Asn Cys Tyr Asn Leu Glu
 57 100 105 110
 60 Ile Lys Lys Pro Asp Gly Ser Glu Cys Leu Pro Ala Ala Pro Asp Gly
 61 115 120 125
 64 Ile Arg Gly Phe Pro Arg Cys Arg Tyr Val His Lys Val Ser Gly Thr
 65 130 135 140
 68 Gly Pro Cys Ala Gly Asp Phe Ala Phe His Lys Glu Gly Ala Phe Phe
 69 145 150 155 160
 72 Leu Tyr Asp Arg Leu Ala Ser Thr Val Ile Tyr Arg Gly Thr Thr Phe
 73 165 170 175

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76 Ala Glu Gly Val Val Ala Phe Leu Ile Leu Pro Gln Ala Lys Lys Asp
77 180 185 190
80 Phe Phe Ser Ser His Pro Leu Arg Glu Pro Val Asn Ala Thr Glu Asp
81 195 200 205
84 Pro Ser Ser Gly Tyr Tyr Ser Thr Thr Ile Arg Tyr Gln Ala Thr Gly
85 210 215 220
88 Phe Gly Thr Asn Glu Thr Glu Tyr Leu Phe Glu Val Asp Asn Leu Thr
89 225 230 235 240
92 Tyr Val Gln Leu Glu Ser Arg Phe Thr Pro Gln Phe Leu Leu Gln Leu
93 245 250 255
96 Asn Glu Thr Ile Tyr Thr Ser Gly Lys Arg Ser Asn Thr Thr Gly Lys
97 260 265 270
100 Leu Ile Trp Lys Val Asn Pro Glu Ile Asp Thr Thr Ile Gly Glu Trp
101 275 280 285
104 Ala Phe Trp Glu Thr Lys Lys Asn Leu Thr Arg Lys Ile Arg Ser Glu
105 290 295 300
108 Glu Leu Ser Phe Thr Val Val Ser Asn Gly Ala Lys Asn Ile Ser Gly
109 305 310 315 320
112 Gln Ser Pro Ala Arg Thr Ser Ser Asp Pro Gly Thr Asn Thr Thr Thr
113 325 330 335
116 Glu Asp His Lys Ile Met Ala Ser Glu Asn Ser Ser Ala Met Val Gln
117 340 345 350
120 Val His Ser Gln Gly Arg Glu Ala Ala Val Ser His Leu Thr Thr Leu
121 355 360 365
124 Ala Thr Ile Ser Thr Ser Pro Gln Ser Leu Thr Thr Lys Pro Gly Pro
125 370 375 380
128 Asp Asn Ser Thr His Asn Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu
129 385 390 395 400
132 Ala Thr Gln Val Glu Gln His His Arg Arg Thr Asp Asn Asp Ser Thr
133 405 410 415
136 Ala Ser Asp Thr Pro Ser Ala Thr Thr Ala Ala Gly Pro Pro Lys Ala
137 420 425 430
140 Glu Asn Thr Asn Thr Ser Lys Ser Thr Asp Phe Leu Asp Pro Ala Thr
141 435 440 445
144 Thr Thr Ser Pro Gln Asn His Ser Glu Thr Ala Gly Asn Asn Asn Thr
145 450 455 460
148 His His Gln Asp Thr Gly Glu Glu Ser Ala Ser Ser Gly Lys Leu Gly
149 465 470 475 480
152 Leu Ile Thr Asn Thr Ile Ala Gly Val Ala Gly Leu Ile Thr Gly Gly
153 485 490 495
156 Arg Arg Thr Arg Arg Glu Ala Ile Val Asn Ala Gln Pro Lys Cys Asn
157 500 505 510
160 Pro Asn Leu His Tyr Trp Thr Thr Gln Asp Glu Gly Ala Ala Ile Gly
161 515 520 525
164 Leu Ala Trp Ile Pro Tyr Phe Gly Pro Ala Ala Glu Gly Ile Tyr Ile
165 530 535 540
168 Glu Gly Leu Met His Asn Gln Asp Gly Leu Ile Cys Gly Leu Arg Gln
169 545 550 555 560
172 Leu Ala Asn Glu Thr Thr Gln Ala Leu Gln Leu Phe Leu Arg Ala Thr

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173	565	570	575
176	Thr Glu Leu Arg Thr Phe Ser Ile Leu Asn Arg Lys Ala Ile Asp Phe		
177	580	585	590
180	Leu Leu Gln Arg Trp Gly Gly Thr Cys His Ile Leu Gly Pro Asp Cys		
181	595	600	605
184	Cys Ile Glu Pro His Asp Trp Thr Lys Asn Ile Thr Asp Lys Ile Asp		
185	610	615	620
188	Gln Ile Ile His Asp Phe Val Asp Lys Thr Leu Pro Asp Gln Gly Asp		
189	625	630	635
192	Asn Asp Asn Trp Trp Thr Gly Trp Arg Gln Trp Ile Pro Ala Gly Ile		
193	645	650	655
196	Gly Val Thr Gly Val Ile Ile Ala Val Ile Ala Leu Phe Cys Ile Cys		
197	660	665	670
200	Lys Phe Val Phe		
201	675		
204	<210> SEQ ID NO: 2		
205	<211> LENGTH: 364		
206	<212> TYPE: PRT		
207	<213> ORGANISM: Ebola virus		
209	<400> SEQUENCE: 2		
211	Met Gly Val Thr Gly Ile Leu Gln Leu Pro Arg Asp Arg Phe Lys Arg		
212	1	5	10
			15
215	Thr Ser Phe Phe Leu Trp Val Ile Ile Leu Phe Gln Arg Thr Phe Ser		
216	20	25	30
219	Ile Pro Leu Gly Val Ile His Asn Ser Thr Leu Gln Val Ser Asp Val		
220	35	40	45
223	Asp Lys Leu Val Cys Arg Asp Lys Leu Ser Ser Thr Asn Gln Leu Arg		
224	50	55	60
227	Ser Val Gly Leu Asn Leu Glu Gly Asn Gly Val Ala Thr Asp Val Pro		
228	65	70	75
			80
231	Ser Ala Thr Lys Arg Trp Gly Phe Arg Ser Gly Val Pro Pro Lys Val		
232	85	90	95
235	Val Asn Tyr Glu Ala Gly Glu Trp Ala Glu Asn Cys Tyr Asn Leu Glu		
236	100	105	110
239	Ile Lys Lys Pro Asp Gly Ser Glu Cys Leu Pro Ala Ala Pro Asp Gly		
240	115	120	125
243	Ile Arg Gly Phe Pro Arg Cys Arg Tyr Val His Lys Val Ser Gly Thr		
244	130	135	140
247	Gly Pro Cys Ala Gly Asp Phe Ala Phe His Lys Glu Gly Ala Phe Phe		
248	145	150	155
			160
251	Leu Tyr Asp Arg Leu Ala Ser Thr Val Ile Tyr Arg Gly Thr Thr Phe		
252	165	170	175
255	Ala Glu Gly Val Val Ala Phe Leu Ile Leu Pro Gln Ala Lys Lys Asp		
256	180	185	190
259	Phe Phe Ser Ser His Pro Leu Arg Glu Pro Val Asn Ala Thr Glu Asp		
260	195	200	205
263	Pro Ser Ser Gly Tyr Tyr Ser Thr Thr Ile Arg Tyr Gln Ala Thr Gly		
264	210	215	220
267	Phe Gly Thr Asn Glu Thr Glu Tyr Leu Phe Glu Val Asn Leu Thr		

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268 225 230 235 240
 271 Tyr Val Gln Leu Glu Ser Arg Phe Thr Pro Gln Phe Leu Leu Gln Leu
 272 245 250 255
 275 Asn Glu Thr Ile Tyr Thr Ser Gly Lys Arg Ser Asn Thr Thr Gly Lys
 276 260 265 270
 279 Leu Ile Trp Lys Val Asn Pro Glu Ile Asp Thr Thr Ile Gly Glu Trp
 280 275 280 285
 283 Ala Phe Trp Glu Thr Lys Lys Thr Ser Leu Glu Lys Phe Ala Val Lys
 284 290 295 300
 287 Ser Cys Leu Ser Gln Leu Tyr Gln Thr Glu Pro Lys Thr Ser Val Val
 288 305 310 315 320
 291 Arg Val Arg Arg Glu Leu Leu Pro Thr Gln Gly Pro Thr Gln Gln Leu
 292 325 330 335
 295 Lys Thr Thr Lys Ser Trp Leu Gln Lys Ile Pro Leu Gln Trp Phe Lys
 296 340 345 350
 299 Cys Thr Val Lys Glu Gly Lys Leu Gln Cys Arg Ile
 300 355 360
 303 <210> SEQ ID NO: 3
 304 <211> LENGTH: 511
 305 <212> TYPE: PRT
 306 <213> ORGANISM: Vesicular stomatitis virus
 308 <400> SEQUENCE: 3
 310 Met Lys Cys Leu Leu Tyr Leu Ala Phe Leu Phe Ile Gly Val Asn Cys
 311 1 5 10 15
 314 Lys Phe Thr Ile Val Phe Pro His Asn Gln Lys Gly Asn Trp Lys Asn
 315 20 25 30
 318 Val Pro Ser Asn Tyr His Tyr Cys Pro Ser Ser Ser Asp Leu Asn Trp
 319 35 40 45
 322 His Asn Asp Leu Ile Gly Thr Ala Leu Gln Val Lys Met Pro Lys Ser
 323 50 55 60
 326 His Lys Ala Ile Gln Ala Asp Gly Trp Met Cys His Ala Ser Lys Trp
 327 65 70 75 80
 330 Val Thr Thr Cys Asp Phe Arg Trp Tyr Gly Pro Lys Tyr Ile Thr His
 331 85 90 95
 334 Ser Ile Arg Ser Phe Thr Pro Ser Val Glu Gln Cys Lys Glu Ser Ile
 335 100 105 110
 338 Glu Gln Thr Lys Gln Gly Thr Trp Leu Asn Pro Gly Phe Pro Pro Gln
 339 115 120 125
 342 Ser Cys Gly Tyr Ala Thr Val Thr Asp Ala Glu Ala Val Ile Val Gln
 343 130 135 140
 346 Val Thr Pro His His Val Leu Val Asp Glu Tyr Thr Gly Glu Trp Val
 347 145 150 155 160
 350 Asp Ser Gln Phe Ile Asn Gly Lys Cys Ser Asn Tyr Ile Cys Pro Thr
 351 165 170 175
 354 Val His Asn Ser Thr Thr Trp His Ser Asp Tyr Lys Val Lys Gly Leu
 355 180 185 190
 358 Cys Asp Ser Asn Leu Ile Ser Met Asp Ile Thr Phe Phe Ser Glu Asp
 359 195 200 205
 362 Gly Glu Leu Ser Ser Leu Gly Lys Glu Gly Thr Gly Phe Arg Ser Asn

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363	210	215	220															
366	Tyr	Phe	Ala	Tyr	Glu	Thr	Gly	Gly	Lys	Ala	Cys	Lys	Met	Gln	Tyr	Cys		
367	225		230		235		240											
370	Lys	His	Trp	Gly	Val	Arg	Leu	Pro	Ser	Gly	Val	Trp	Phe	Glu	Met	Ala		
371					245		250		255									
374	Asp	Lys	Asp	Leu	Phe	Ala	Ala	Ala	Arg	Phe	Pro	Glu	Cys	Pro	Glu	Gly		
375				260		265		270										
378	Ser	Ser	Ile	Ser	Ala	Pro	Ser	Gln	Thr	Ser	Val	Asp	Val	Ser	Leu	Ile		
379				275		280		285										
382	Gln	Asp	Val	Glu	Arg	Ile	Leu	Asp	Tyr	Ser	Leu	Cys	Gln	Glu	Thr	Trp		
383				290		295		300										
386	Ser	Lys	Ile	Arg	Ala	Gly	Leu	Pro	Ile	Ser	Pro	Val	Asp	Leu	Ser	Tyr		
387		305				310		315		320								
390	Leu	Ala	Pro	Lys	Asn	Pro	Gly	Thr	Gly	Pro	Ala	Phe	Thr	Ile	Ile	Asn		
391					325		330		335									
394	Gly	Thr	Leu	Lys	Tyr	Phe	Glu	Thr	Arg	Tyr	Ile	Arg	Val	Asp	Ile	Ala		
395					340		345		350									
398	Ala	Pro	Ile	Leu	Ser	Arg	Met	Val	Gly	Met	Ile	Ser	Gly	Thr	Thr	Thr		
399					355		360		365									
402	Glu	Arg	Glu	Leu	Trp	Asp	Asp	Trp	Ala	Pro	Tyr	Glu	Asp	Val	Glu	Ile		
403					370		375		380									
406	Gly	Pro	Asn	Gly	Val	Leu	Arg	Thr	Ser	Ser	Gly	Tyr	Lys	Phe	Pro	Leu		
407		385				390		395		400								
410	Tyr	Met	Ile	Gly	His	Gly	Met	Leu	Asp	Ser	Asp	Leu	His	Leu	Ser	Ser		
411						405		410		415								
414	Lys	Ala	Gln	Val	Phe	Glu	His	Pro	His	Ile	Gln	Asp	Ala	Ala	Ser	Gln		
415						420		425		430								
418	Leu	Pro	Asp	Asp	Glu	Ser	Leu	Phe	Phe	Gly	Asp	Thr	Gly	Leu	Ser	Lys		
419						435		440		445								
422	Asn	Pro	Ile	Glu	Leu	Val	Glu	Gly	Trp	Phe	Ser	Ser	Trp	Lys	Ser	Ser		
423						450		455		460								
426	Ile	Ala	Ser	Phe	Phe	Ile	Ile	Gly	Leu	Ile	Ile	Gly	Leu	Phe	Leu			
427		465				470		475		480								
430	Val	Leu	Arg	Val	Gly	Ile	His	Leu	Cys	Ile	Lys	Leu	Lys	His	Thr	Lys		
431						485		490		495								
434	Lys	Arg	Gln	Ile	Tyr	Thr	Asp	Ile	Glu	Met	Asn	Arg	Leu	Gly	Lys			
435						500		505		510								
438	<210>	SEQ	ID	NO:	4													
439	<211>	LENGTH:	147															
440	<212>	TYPE:	DNA															
441	<213>	ORGANISM:	Vesicular	stomatitis	virus													
443	<400>	SEQUENCE:	4															
444	agctctattg	cctctttttt	ctttatcata	gggttaatca	ttggactatt	cttggttctc											60	
446	cgagttggta	tccatctttg	cattaaattha	aagcacacca	agaaaagaca	gatttataca											120	
448	gacatagaga	tgaaccgact	tggaaag														147	
451	<210>	SEQ	ID	NO:	5													
452	<211>	LENGTH:	126															
453	<212>	TYPE:	DNA															
454	<213>	ORGANISM:	Vesicular	stomatitis	virus													

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 11/08/2004
PATENT APPLICATION: US/10/510,947 TIME: 12:29:51

Input Set : A:\UPN-O2811USA.txt
Output Set: N:\CRF4\11082004\J510947.raw

Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34
Seq#:35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58
Seq#:59,60,61,62,63,64,65,66,67

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/510,947

DATE: 11/08/2004

TIME: 12:29:51

Input Set : A:\UPN-02811USA.txt

Output Set: N:\CRF4\11082004\J510947.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date